

Title (en)
PRESSURE EXCHANGER AND USE THEREOF

Title (de)
DRUCKÜBERTRAGER UND VERWENDUNG DAVON

Title (fr)
ECHANGEUR DE PRESSION ET SON UTILISATION

Publication
EP 1805421 B1 20190116 (EN)

Application
EP 05785435 A 20050810

Priority
• US 2005028356 W 20050810
• US 59976004 P 20040810

Abstract (en)
[origin: US2006032808A1] A pressure exchanger for transferring pressure energy from a relatively high-pressure fluid stream to another relatively low-pressure fluid stream is provided. A ducted rotor is positioned on a central axle between two end covers inside a pressure vessel with a coaxial inlet and outlet pair that is in communication with a pair of low pressure ports having inclination forming an inlet tangential velocity vector in the direction of rotor rotation and an outlet tangential velocity vector in opposite direction imparting a rotational momentum on rotor. A pair of high-pressure ports is adapted for flow without inclination and imparts no momentum to rotor and flow can be varied without impacting the rotor's RPM. The end covers have a sloped surface following a flat sealing area that increases the clearance in the direction of rotation causing increased outflow during depressurization and lower duct pressure before duct is exposed to low pressure port and furthermore causing increased inflow during the pressurization phase before duct is exposed to the high pressure port, which will dissipate pressure energy as opposed to producing cavitation or pressure waves with result wear and noise.

IPC 8 full level
F02C 3/02 (2006.01); **F04F 99/00** (2009.01); **B01D 61/00** (2006.01); **G01L 3/02** (2006.01)

CPC (source: EP US)
B01D 61/06 (2013.01 - EP US); **F04F 13/00** (2013.01 - EP US); **Y02A 20/131** (2017.12 - EP US)

Citation (examination)
• US 5274994 A 19940104 - CHYOU YAN-PIN [CH], et al
• GB 427957 A 19350429 - ALBERT FRANCOIS LEBRE

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
US 2006032808 A1 20060216; US 7306437 B2 20071211; BR PI0513789 A 20080513; CA 2576580 A1 20060223; CA 2576580 C 20130212; CN 101044325 A 20070926; CN 101044325 B 20120530; EP 1805421 A2 20070711; EP 1805421 A4 20090121; EP 1805421 B1 20190116; ES 2719475 T3 20190710; IL 181195 A0 20070704; IL 181195 A 20110831; WO 2006020679 A2 20060223; WO 2006020679 A3 20070412

DOCDB simple family (application)
US 20023805 A 20050810; BR PI0513789 A 20050810; CA 2576580 A 20050810; CN 200580027030 A 20050810; EP 05785435 A 20050810; ES 05785435 T 20050810; IL 18119507 A 20070207; US 2005028356 W 20050810